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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/776,449

02/11/2004

Paul Hepworth

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EXAMINER

MOHR, ERIC JOHN

ART UNIT

PAPER NUMBER

4181

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DELIVERY MODE

10/31/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/776,449

Applicant(s)

HEPWORTH ET AL.

Examiner

Eric J. Mohr

Art Unit

4181

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pine (US 6,993,210) in view of Scola et al (US 5,742,037).

Consider claim 1, Pine discloses a method for concurrent image capture and processing (**see column 2, lines 25-40 where pine describes a method where image capturing and processing are performed concurrently in buffered stages**), comprising: capturing a first image (**see column 11, lines 48-49**); processing the first image (**see column 11, lines 49-51**); and capturing a second image while the first image is being processed (**see column 11, lines 52-57**). Pine does not explicitly disclose the image processing to include searching for a graphical code within the first image and attempting to decode the graphical code. Scola discloses an image processing method that includes searching for a graphical code within an image (**see column 9, line 58 to column 10, line 11 where Scola discusses the search path for code lines**) and attempting to decode the graphical code (**see column 10, lines 12-15 where Scola discusses comparing the code found to those of a training set**).

It would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Pine, and modify the image processing system to

perform graphical code decoding in the image processing portion, as taught by Scola, thus processing items as accurately and rapidly as possible, as discussed by Scola **(see column 1, lines 15-26).**

Consider claim 9, Pine discloses an image capture device that is configured for concurrent image capture and processing **(see column 1, line 57 to column 2, line 5 where Pine discusses an image sensing circuit connected to an image processing circuit used to simultaneously sense and process image data),** comprising: a component configured to process a first image **(see column 4, lines 42-44);** an image capture component configured to capture the first image **(see column 4, lines 12-16)** and to capture a second image while the first image is being processed by the decoding component **(see column 11, lines 52-57);** a pool of image buffers for temporarily storing the first image and the second image **(see column 4, lines 32-34).** Pine does not explicitly disclose the device being that of a graphical code reader and processing the image by searching for a graphical code within the first image and attempting to decode the graphical code. Scola discloses an image processing method that includes searching for a graphical code within an image **(see column 9, line 58 to column 10, line 11 where Scola discusses the search path for code lines)** and attempting to decode the graphical code **(see column 10, lines 12-15 where Scola discusses comparing the code found to those of a training set).**

It would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Pine, and modify the image processing system to

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perform graphical code decoding in the image processing portion, as taught by Scola, thus processing items as accurately and rapidly as possible, as discussed by Scola **(see column 1, lines 15-26)**.

Consider claims 2 and 10, Pine the capture of an image with a component designed to sequentially capture then send the images to be processed by another component, buffering an image if the image processing component is busy **(see column 11, lines 47-57)**. Inherently the second image will begin capture when the first image begins processing, as the buffer will initially be empty.

3. Claims 3-6, 8, 11-14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pine in view of Scola as applied to claims 1 and 9 above, and further in view of Thornton et al (US 7,197,749).

Consider claims 3 and 11, Pine in view of Scola disclose the graphical code reader of claims 1 and 9. Pine in view of Scola do not disclose determining an estimated processing time  $p$  for processing at least some of the first image; and determining an estimated capture time  $c$  for capturing the second image. Thornton discloses a method of executing tasks in which the completion time for each task is computed to be used in further scheduling **(see column 10, lines 35-56)**. The image capture and image decoding are each considered tasks and therefore have estimated completion times.

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It would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Pine in view of Scola, and modify the graphical code reader to calculate estimated processing times for image capture and image decoding as taught by Thornton, thus eliminating delays in the system, as discussed by Thornton **(see column 1, line 58 to column 2, line 4)**.

Consider claims 4 and 12, Thornton discloses using the estimated completion time for the tasks to create task assignments, which start each task **(see column 10, lines 44-64)**.

Consider claims 5, 6, 13, and 14. Scola discloses searching and decoding a portion **(see column 9, lines 45-57 discussing the use of a search window)** as well as an entire image **(see column 10, lines 49-61 discussing the processing of an entire image frame)**. Scola does not explicitly disclose estimating the time to process the image or portion thereof. Thornton discloses estimating the completion time for any task **(see column 10, lines 35-56)**.

It would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Scola, and modify the image processing portion to estimate the processing time, as taught by Thornton, thus efficiently delegate work to processor capable of performing the task, as discussed by Thornton **(see column 2, lines 37-47)**.

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Consider claims 8 and 16, Scola discloses stopping the processing of the first image after a prescribed time unit (**see column 10, lines 23-25**). Scola does not explicitly disclose this time limit being an estimated processing time. Thornton discloses a estimating a task completion time (**see column 10, lines 35-56**).

It would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Scola, and modify the prescribed time limit to be the estimated processing time, as taught by Thornton, thus eliminating delays in the system, as discussed by Thornton (**see column 1, line 58 to column 2, line 4**).

4. Claims 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pine, Scola, and Thornton as applied to claims 4 and 12 above, and further in view of Neufelder (US 5,473,741).

Consider claims 7 and 15, the combination of Pine, Scola, and Thornton discloses the graphical code reader of claim 6 and 14. Pine, Scola, and Thornton do not explicitly disclose the estimated processing time  $p$  being a function of at least one of the quality of the first image, the number of symbols in the graphical code, and the complexity of the symbols in the graphical code. Neufelder discloses estimating the processing time of an image base in part upon the complexity of the image (**see column 7, line 53 to column 8, line 60**).

It would have been obvious to one skilled in the art at the time the invention was made to modify the combination of Pine, Scola, and Thornton, and modify the estimation of image processing time to be a function of image parameters, as taught by

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Neufelder, thus allowing the estimation of the processing time for an image without actually performing the processing, as discussed by Neufelder (**see column 2, lines 41-57**).

### **Conclusion**

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Tsuchihashi (US 2005/0146758) discloses an image scanning system in which image scan time and image processing time is estimated.

### **Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric J. Mohr whose telephone number is (571) 270-5140. The examiner can normally be reached on 7:30am-5pm M-Th, 7:30am-4pm Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro can be reached on (571) 272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

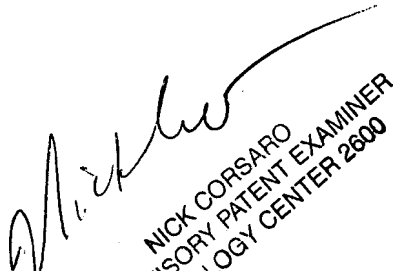
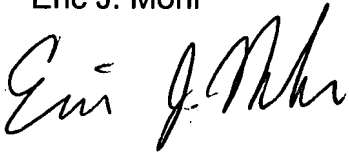
  
**NICK CORSARO**  
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Eric J. Mohr



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